Assembly & Tightening of Bolted Flanged Connections

ECITB TECSkills Unit - PF019
“Assembling and Torque of Bolted Flanged Connections” (using hydraulic torque tightening equipment).

ECITB TECSkills Unit - PF018
“Assembling and Tensioning of Bolted Flanged Connections” (using hydraulic tensioning equipment).

ECITB TECSkills Unit - PF015
“Assembly & Tightening of Bolted Flanged Connections”

ECITB TECSkills Unit - PF010
“Jointing Pipeline using Flanged Connections” (use of hand torque/tools)

City & Guilds
“Assembly and Tightening of Bolted Flanged Connections”

All above units can be provided with global City & Guilds certification.
Management of Leaks:
The objective of a correctly designed and installed flanged bolted connection is to provide a long term tight seal and prevent ingress or egress of fluids or gasses through the joint.

However leaks can occur, and managing the investigation and repair of the leak is essential to avoid recurrence. Using the data from this investigation also remains critical to avoid similar issues within future projects.
**Asset Integrity:**

“Asset Integrity can be defined as the ability of an asset to perform its required function effectively and efficiently whilst protecting health, safety, and the environment. Asset Integrity management is the means of ensuring the people systems processes and resources, that deliver integrity are in place, in use, and will perform when required over the whole life cycle of the asset.”

**Problem:**

Leaking bolted flanged connections remains a key fundamental area of concern specific to unplanned fugitive emissions, the effects of which remain a significant risk to safety of personnel involved in the process of maintenance and construction.

Re-work also remains extremely costly, and the life cycle of the bolted connection brings with it many control issues specific to paper chasing the audit trail from design to procurement, from assembly to tightening.

**Solution:**

The Energy Institute in association with UK Oil and Gas (formerly UKOOA) has published new guidance to assist the aim of securing improvement in the management of offshore/onshore installation integrity by the development and promotion of industry best practices and suitable performance measures.

Hydratight was closely involved in the preparation of these guidelines and had a major input in the training and competence elements.

**Management Systems for Flanged Joints:**

The Integrity of Bolted Pipe Joints over the whole life of the plant should be addressed within the management system. This should be achieved as a matter of management policy by specifically identifying management of bolted pipe joints within the engineering design, construction, maintenance and operation standards and procedures.

There should be a formal competence assurance scheme, which ensures that competency of all personnel (company and contractor) who are required to work on bolted pipe joints is formally assessed and maintained through periodic reassessment. A register of competent personnel including contractors should be kept.

**KEY PROGRAMME 3 ASSET INTEGRITY PROGRAMME - SKILL SHORTAGE**

(HSE STUDY)

Hydratight as accredited training providers will ensure all personnel who are responsible for assembling and tightening bolt flanged connections are trained and assessed to industry best practice in joint integrity.
Accredited Training and Assessment Programmes:
Hydratight has a wealth of experience in the design and manufacturing process of bolt tightening equipment, together with many years technical experience in supplying highly skilled technicians on shutdowns and turnarounds globally. Senior technicians who supervise such operations remain key to Hydratight's Global Training Department as it is their years of on-site experience that remains a key to delivery of these key skills. All Training Instructors are ex senior technicians and qualified TECSkills coaches.

Accreditation:
Hydratight is an ECITB and City & Guilds accredited training provider and is represented on ASME/CEN Committees developing new US and European Training and Competency Standards in Joint Integrity Skills.
E Learning-CBT Products
Available for Bolted Flanged Connections training.

Theory:
Clients have two options available regarding the delivery of the theory section of courses. This can either be carried out classroom style at the client’s premises (or at Hydratight’s premises) or, given that staff can be based anywhere in the world – with all the resulting difficulties in trying to arrange training – we have developed an innovative computer-based package in conjunction with Mintra AS Production in Norway.

This allows students to learn the theory either from a CD Rom or via the Internet.

This computer-based system provides all the necessary theoretical knowledge and a final assessment. This is marked by our assessors before the student moves on to the practical stage.

Practice:
Hydratight has three dedicated training centres, located in Walsall, Aberdeen and Teeside. Hydratight has the most comprehensive and well equipped facilities available for this type of training.

However, if it is more convenient for you, it is no problem for Hydratight to set up a practical training area at a location of your choice.

Hydratight’s flexibility in designing courses which suit your particular company, the extensive practical training facilities and ability to provide the entire package at locations which you select, helps make Hydratight a market leader in the provision of training in mechanical joint integrity.

Results:
Accredited training will provide a platform of understanding specific to the essential elements of a management system focused on managing the integrity process.

- A motivated workforce with Best Practice Skills
- Reduced costs by a “right first time” philosophy
- Legislation compliance ref HSE
- Access to latest technical standards and procedures
- Networking opportunities with Global Support

TRAINING IS NOT EXPENSIVE RE-WORK IS!
Material sourced from fully sustainable, managed forests using Elemental Chlorine Free fibre.